

### **REMARKS**

Claims 1-3 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **OBJECTION UNDER 37 C.F.R. § 1.75(c)**

Claims 2-3 stand objected to under 37 C.F.R. § 1.75(c) as being of improper independent form. Specifically, this rejection asserts that Claims 2-3 are improper, since Claim 1 is a process claim and Claims 2-3, depend therefrom, but are product-by-process claims. Claim 2 has been amended to place it in independent form. The claim is otherwise not substantively changed, and therefore, the amendment herein is not a narrowing amendment. Claim 3 is dependent from Claim 2. Accordingly, Applicants believe this objection has been accommodated or rendered moot.

### **REJECTION UNDER 35 U.S.C. § 112**

Claim 12 [sic] stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. Specifically, this rejection asserts that the phrase "in such a state that" should be substituted with the term "when" for clarity. Since this language appears in Claim 1, Applicants believe this rejection is directed to Claim 1 and Applicants have amended this claim as suggested. The amendment herein is not a narrowing amendment, since the substituted language is believed to have the

same meaning as the original language. Accordingly, Applicants believe this rejection has been accommodated or rendered moot.

#### **REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103**

Claims 2-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Hanna (JPO Website Machine English Translation of JP2001-075297). Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hanna (JPO Website Machine English Translation of JP2001-075297) in view of Bloom (U.S. Pat. No. 4,141,627). These rejections are respectfully traversed.

Hanna (JP2001-075297) teaches an organic semiconductor material having a charge mobility (i.e., electron mobility and positive hole mobility) of greater than or equal to  $1 \times 10^{-5} \text{ cm}^2/\text{v}.\text{sec}$ , preferably  $1 \times 10^{-4} \text{ cm}^2/\text{v}.\text{sec}$  (paragraph [0011]). In view of the order of the charge mobility, however, the organic semiconductor material of Hanna is not considered to be **repeatedly purified to expel impurities** as recited in Claim 1, since the organic semiconductor material should have an excellent charge mobility of not less than  $5 \times 10^{-3} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$  in a crystalline phase or  $5 \times 10^{-2} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$  in a liquid crystal phase when the organic semiconductor material has not been repeatedly purified to expel impurities as the organic semiconductor material according to the present invention (page 2, lines 23 to 28 of the specification). Thus, Hanna's organic semiconductor material does not have the **phase angle  $\theta$  of impedance of  $-80^\circ \leq \theta \leq -90^\circ$**  as recited in independent Claims 1 and 2. Therefore, the claimed product and prior

art product are not identical either in structure or in composition, or are not produced by identical processes.

Regarding the obviousness rejections, these rejections note that Hanna teaches the electron conduction of the organic material is desirably more dominant than ionic conduction, and thus that this means that the ionic conduction is desirably minimized (page 7, lines 8 to 12 of the Office Action). Hanna, however, teaches that ionic conduction becomes more dominant than electron conduction in the charge mobility of less than or equal to  $1 \times 10^{-5} \text{ cm}^2/\text{v}.\text{sec}$ . That is, Hanna merely teaches that a self-oriented material like a liquid crystalline compound has a band like electron conductive mechanism. In fact, Hanna fails to teach or suggest that an ion conductive material is not desirably included in the organic material and that a charge transfer is hindered by the ion conductive materials (page 5, lines 7 to 11 of the specification). Therefore, one of ordinary skill in the art **would not** attempt to expel ionic impurities to achieve **an impedance in the range of  $-80^\circ \leq \theta \leq -90^\circ$**  as recited in independent Claims 1 and 2. Consequently, it would not be obvious to one of ordinary skill in the art to apply the steps of repeatedly purifying the liquid crystalline compound disclosed in Bloom (US 4,141,627) to the organic semiconductor material of Hanna or to achieve the claimed impedance range. Further, since Claim 3 depends from independent Claim 2, Applicants believe it is likewise patentable over these rejections for the at least the reasons discussed above.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: November 13, 2007

By:   
Michael E. Hilton,  
Reg. No. 33,509

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

MEH/jks